

JAN

Access DB# 134697

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: REGIMIER Examiner #: _____ Date: 10/7/04
 Art Unit: 1651 Phone Number 30 _____ Serial Number: 10/761,590
 Mail Box and Bldg/Room Location: _____ Results Format Preferred (circle): PAPER DISK E-MAIL
3065/3671

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc. if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

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Searcher: <u>Noble</u>	Type of Search	Vendors and cost where applicable
Searcher Phone #: _____	NA Sequence (#) _____	STN <u>363</u>
Searcher Location: _____	AA Sequence (#) _____	Dialog _____
Date Searcher Picked Up: _____	Structure (#) _____	Questel/Orbit _____
Date Completed: <u>10/8/04</u>	Bibliographic <input checked="" type="checkbox"/>	Dr.Link _____
Searcher Prep & Review Time: <u>30</u>	Litigation _____	Lexis/Nexis _____
Clerical Prep Time: _____	Fulltext _____	Sequence Systems _____
Online Time: <u>50</u>	Patent Family _____	WWW/Internet _____
	Other _____	Other (specify) _____



STIC Search Report

Biotech-Chem Library

STIC Database Tracking Number: 134697

TO: Ralph J Gitomer
Location: 3d65 / 3e71
Art Unit: 1651
Friday, October 08, 2004

Case Serial Number: 10/761590

From: Noble Jarrell
Location: Biotech-Chem Library
Rem 1B71
Phone: 272-2556

Noble.jarrell@uspto.gov

Search Notes

=> d his

(FILE 'HOME' ENTERED AT 08:08:43 ON 08 OCT 2004)

FILE 'HCAPLUS' ENTERED AT 08:44:35 ON 08 OCT 2004

L1 1 US20040152151/PN

FILE 'REGISTRY' ENTERED AT 08:44:47 ON 08 OCT 2004

FILE 'HCAPLUS' ENTERED AT 08:44:50 ON 08 OCT 2004

L2 TRA L1 1- RN : 14 TERMS

FILE 'REGISTRY' ENTERED AT 08:44:50 ON 08 OCT 2004

L3 14 SEA L2

FILE 'WPIX' ENTERED AT 08:44:54 ON 08 OCT 2004

L4 1 US20040152151/PN

=> b hcap

FILE 'HCAPLUS' ENTERED AT 08:45:19 ON 08 OCT 2004

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FILE COVERS 1907 - 8 Oct 2004 VOL 141 ISS 16

FILE LAST UPDATED: 7 Oct 2004 (20041007/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d all 11

L1 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:185025 HCAPLUS

DN 136:251844

ED Entered STN: 15 Mar 2002

TI Polyhydroxyalkanoate levels as an indicator of bioreactor health

IN Dragotta, Dominic A.; Nagarajan, Vasantha; Thomas, Stuart M.

PA E. I. Du Pont de Nemours & Co., USA

SO PCT Int. Appl., 39 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C02F003-12

CC 60-1 (Waste Treatment and Disposal)

Section cross-reference(s): 10

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002020416	A2	20020314	WO 2001-US27456	20010904
	WO 2002020416	A3	20020613		
	W: CA, JP, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	US 2002052016	A1	20020502	US 2001-940298	20010828
	US 6737263	B2	20040518		
	EP 1337475	A2	20030827	EP 2001-970633	20010904
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	JP 2004514545	T2	20040520	JP 2002-525046	20010904
	US 2004152151	A1	20040805	US 2004-761590	20040121 <--
PRAI	US 2000-231025P	P	20000908		
	US 2001-940298	A3	20010828		
	WO 2001-US27456	W	20010904		

Searched by Noble Jarrell

CLASS	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	WO 2002020416	ICM	C02F003-12
	JP 2004514545	FTERM	4D028/AC03; 4D028/BB02; 4D028/BB07; 4D028/CA00; 4D028/CB03; 4D028/CC00; 4D040/BB42; 4D040/BB91; 4D040/BB93; 4D040/DD03; 4D040/DD14; 4D040/DD31
AB	A method has been developed for monitoring and controlling the biocatalytic efficiency of a wastewater treatment process comprising: (a) providing an activated sludge environment; (b) sampling wastewater from anaerobic, anoxic and/or aerobic stages of the treatment process; (c) measuring the concentration of polyhydroxyalkanoates or glycogen present in the sample to determine the status of a selected sample characteristic; and (d) adjusting the feed nutrient in the activated sludge environment depending on the status of the selected sample wherein the biocatalytic efficiency of a wastewater treatment process is controlled. The activated sludge environment provided comprises: (i) a carbon influx; (ii) cultures of autotrophic, heterotrophic and facultative microorganisms; (iii) a feed nutrient; and (iv) an end electron acceptor. In general, levels of PHA in excess of about 15 to about 20 dry weight of the biomass is an indication that the biocatalytic efficiency of the wastewater treatment process is impaired.		
ST	monitoring control biocatalytic efficiency activated sludge wastewater treatment; polyhydroxyalkanoate monitoring activated sludge wastewater treatment bioreactor		
IT	Wastewater treatment (activated-sludge process, apparatus, performance of; method for monitoring and controlling biocatalytic efficiency of)		
IT	Wastewater treatment (activated-sludge process; method for monitoring and controlling biocatalytic efficiency of)		
IT	Proteobacteria (alpha, beta, and gamma; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process employing Proteobacteria)		
IT	Alcohols, biological studies Amines, biological studies Amino acids, biological studies Carbohydrates, biological studies Proteins RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses) (carbon source; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)		
IT	Denitrification (efficiency of; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)		
IT	Polyesters, occurrence RL: OCU (Occurrence, unclassified); OCCU (Occurrence) (hydroxycarboxylic acid-based; use in method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)		
IT	Acinetobacter Alcaligenes Azoarcus Burkholderia Paracoccus Pseudomonas Rhodococcus Sphingomonas (method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process employing Proteobacteria)		
IT	Acids, biological studies RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses) (organic, carbon source; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)		
IT	1309-37-1, Ferric oxide, biological studies 7782-44-7, Oxygen, biological studies 10024-97-2, Nitrous oxide, biological studies 14797-65-0, Nitrite, biological studies RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses) (end electron acceptor; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)		

IT 14797-55-8, Nitrate, biological studies 14808-79-8, Sulfate, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(feed nutrient and end electron acceptor; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT 57-13-6, Urea, biological studies 7664-41-7, Ammonia, biological studies 14265-44-2, Phosphate, biological studies 18496-25-8, Sulfide
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(feed nutrient; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT 124-38-9, Carbon dioxide, processes 1320-61-2, Hydroxybutyrate 9005-79-2, Glycogen, processes 50853-48-0, Pentanoic acid, hydroxy-
RL: BCP (Biochemical process); FMU (Formation, unclassified); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

=> b reg

FILE 'REGISTRY' ENTERED AT 08:45:29 ON 08 OCT 2004
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STRUCTURE FILE UPDATES: 6 OCT 2004 HIGHEST RN 757927-15-4
DICTIONARY FILE UPDATES: 6 OCT 2004 HIGHEST RN 757927-15-4

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

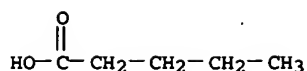
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Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> d ide l3 tot

L3 ANSWER 1 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN 50853-48-0 REGISTRY
CN Pentanoic acid, hydroxy- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Valeric acid, hydroxy- (7CI)
OTHER NAMES:
CN Hydroxypentanoic acid
CN Hydroxyvaleric acid
MF C5 H10 O3
CI IDS, COM
LC STN Files: AGRICOLA, BIOBUSINESS, BIOSIS, CA, CAOLD, CAPLUS, PIRA, TOXCENTER, USPAT2, USPATFULL
DT.CA Caplus document type: Dissertation; Journal; Patent
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.P Roles for non-specific derivatives from patents: BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); NORL (No role in record)



D1-OH

50 REFERENCES IN FILE CA (1907 TO DATE)
 18 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 50 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 2 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 18496-25-8 REGISTRY
 CN Sulfide (8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Sulfide (S2-)
 CN Sulfide ion
 CN Sulfide ion (S2-)
 CN Sulfide ion(2-)
 CN Sulfide(2-)
 CN Sulfur(2-)
 CN Sulfur, ion (S2-)
 CN Sulphide
 MF S
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO,
 CA, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CIN, CSNB, EMBASE,
 IFICDB, IFIPAT, IFIUDB, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT,
 USPAT2, USPATFULL, VTB
 DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent;
 Report
 RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);
 FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU
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 (Reactant or reagent); USES (Uses); NORL (No role in record)
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 (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
 PRP (Properties); RACT (Reactant or reagent); USES (Uses)

S2-

5157 REFERENCES IN FILE CA (1907 TO DATE)
 173 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 5161 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 3 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 14808-79-8 REGISTRY
 CN Sulfate (7CI, 8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Sulfate (ion 2-)
 CN Sulfate anion
 CN Sulfate anion(2-)
 CN Sulfate dianion
 CN Sulfate ion
 CN Sulfate ion (SO42-)
 CN Sulfate(2-)
 CN Sulfuric acid, ion(2-)
 CN Sulphate
 FS 3D CONCORD
 MF O4 S
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO,
 CA, CABA, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX,

CHEMLIST, CIN, CSCHM, CSNB, DETHERM*, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, MSDS-OHS, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VTB

(*File contains numerically searchable property data)

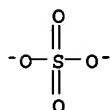
DT.CA CAPLUS document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

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RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



25688 REFERENCES IN FILE CA (1907 TO DATE)
145 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
25710 REFERENCES IN FILE CAPLUS (1907 TO DATE)
3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 4 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN

RN 14797-65-0 REGISTRY

CN Nitrite (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Nitrite (NO2-)

CN Nitrite anion

CN Nitrite ion

CN Nitrite ion (NO2-)

CN Nitrite ion(1-)

CN Nitrite(1-)

CN Nitrogen dioxide ion(1-)

CN Nitrogen dioxide(1-)

CN Nitrogen peroxide ion(1-)

CN Nitrous acid, ion(1-)

FS 3D CONCORD

DR 12183-96-9, 114466-53-4

MF N O2

CI COM

LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHM, CSNB, DDFU, DETHERM*, DRUGU, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL

(*File contains numerically searchable property data)

DT.CA CAPLUS document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

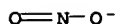
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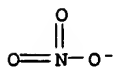
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(Reactant or reagent); USES (Uses)



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 15040 REFERENCES IN FILE CAPLUS (1907 TO DATE)

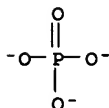
L3 ANSWER 5 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 14797-55-8 REGISTRY
 CN Nitrate (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Nitrate (NO3-)
 CN Nitrate ion
 CN Nitrate ion (NO3-)
 CN Nitrate ion(1-)
 CN Nitrate(1-)
 CN Nitrato
 CN Nitric acid, ion(1-)
 FS 3D CONCORD
 DR 23746-18-1, 73394-83-9, 34236-35-6
 MF N O3
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO,
 CA, CABA, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CIN,
 CSCHEM, CSNB, DDFU, DETHERM*, DRUGU, EMBASE, GMELIN*, HSDB*, IFICDB,
 IFIPAT, IFIUDB, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2,
 USPATFULL, VETU, VTB
 (*File contains numerically searchable property data)
 DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent;
 Preprint; Report
 RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);
 FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU
 (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT
 (Reactant or reagent); USES (Uses)
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 PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES
 (Uses)
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 (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT
 (Reactant or reagent); USES (Uses); NORL (No role in record)
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 (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
 PRP (Properties); RACT (Reactant or reagent); USES (Uses)



36601 REFERENCES IN FILE CA (1907 TO DATE)
 102 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 36623 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 6 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 14265-44-2 REGISTRY
 CN Phosphate (8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Orthophosphate
 CN Orthophosphate (PO43-)
 CN Orthophosphate(3-)
 CN Phosphate (PO43-)
 CN Phosphate anion(3-)
 CN Phosphate ion (PO43-)
 CN Phosphate ion(3-)
 CN Phosphate trianion
 CN Phosphate(3-)
 CN Phosphoric acid, ion(3-)
 FS 3D CONCORD

DR 264888-19-9
 MF 04 P
 CI COM
 LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CIN, CSCHM, CSNB, DDFU, DRUGU, EMBASE, GMELIN*, IFICDB, IFIPAT, IFIUDB, IPA, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
 (*File contains numerically searchable property data)
 Other Sources: NDSL**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)
 DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
 RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
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36474 REFERENCES IN FILE CA (1907 TO DATE)
 372 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 36498 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 7 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 10024-97-2 REGISTRY
 CN Nitrogen oxide (N2O) (7CI, 8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Dinitrogen monoxide
 CN Dinitrogen oxide
 CN Dinitrogen oxide (N2O)
 CN Factitious air
 CN Hyponitrous acid anhydride
 CN Laughing gas
 CN Nitrous oxide
 FS 3D CONCORD
 DR 126386-65-0, 130835-71-1, 129451-49-6, 147527-07-9, 175876-44-5
 MF N2 O
 CI COM
 LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCHM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)
 DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
 RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
 RLD.P Roles for non-specific derivatives from patents: PREP (Preparation); PROC (Process); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

O=N=N

****PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT****

24747 REFERENCES IN FILE CA (1907 TO DATE)
63 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
24763 REFERENCES IN FILE CAPLUS (1907 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 8 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN 9005-79-2 REGISTRY
CN Glycogen (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Animal starch
CN Liver starch
CN Lyoglycogen
CN Phytoglycogen
MF Unspecified
CI PMS, COM, MAN
PCT Manual registration
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMLIST, CIN, CSCHM, DDFU, DRUGU, EMBASE, IFICDB, IFIPAT, IFIUDB, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PIRA, PROMT, RTECS*, TOXCENTER, ULIDAT, USPAT2, USPATFULL
(*File contains numerically searchable property data)
Other Sources: DSL**, EINECS**, TSCA**
(*Enter CHEMLIST File for up-to-date regulatory information)

DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

***** STRUCTURE DIAGRAM IS NOT AVAILABLE *****

29455 REFERENCES IN FILE CA (1907 TO DATE)
107 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
29465 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 9 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
RN 7782-44-7 REGISTRY
CN Oxygen (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Dioxygen
CN Molecular oxygen
CN Oxygen molecule
FS 3D CONCORD
DR 1338-93-8, 14797-70-7, 80217-98-7, 80937-33-3
MF O2
CI COM
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO,

CA, CABA, CANCERLIT, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSChem, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, PS, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

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****PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT****

350063 REFERENCES IN FILE CA (1907 TO DATE)

28110 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

350305 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 10 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN

RN 7664-41-7 REGISTRY

CN Ammonia (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN 21: PN: US20040009933 PAGE: 16 claimed sequence

CN Ammonia gas

CN Ammonia-14N

CN Nitro-Sil

CN R 717

CN Refrigerent R717

CN Spirit of Hartshorn

FS 3D CONCORD

DR 8007-57-6, 208990-07-2, 214478-05-4, 558443-52-0

MF H3 N

CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSChem, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence);

Searched by Noble Jarrell

PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

NH₃

131648 REFERENCES IN FILE CA (1907 TO DATE)
 1717 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 131719 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 11 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 1320-61-2 REGISTRY
 CN Butanoic acid, hydroxy-, ion(1-) (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Butyric acid, hydroxy-, ion(1-) (8CI)
 OTHER NAMES:
 CN Hydroxybutyrate
 MF C4 H7 O3
 CI IDS
 LC STN Files: ADISNEWS, AGRICOLA, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CAPLUS, CEN, CIN, EMBASE, NIOSHTIC, PIRA, PROMT, TOXCENTER, USPAT2, USPATFULL

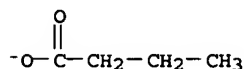
DT.CA CAPLUS document type: Conference; Journal; Patent

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)

RLD.P Roles for non-specific derivatives from patents: BIOL (Biological study); PREP (Preparation); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PROC (Process); RACT (Reactant or reagent); USES (Uses)

RLD.NP Roles for non-specific derivatives from non-patents: PRP (Properties)



D1-OH

57 REFERENCES IN FILE CA (1907 TO DATE)
 4 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 57 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L3 ANSWER 12 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 1309-37-1 REGISTRY
 CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN .alpha.-Ferric oxide
 CN .alpha.-Iron oxide
 CN .gamma.-Ferric oxide
 CN .gamma.-Iron oxide (Fe₂O₃)
 CN .gamma.-MYD
 CN 100ED
 CN 1030AC1005
 CN 120ED
 CN 130ED
 CN 140ED
 CN 140M
 CN 160M
 CN 40G
 CN Abdoscan
 CN APC 944

CN AQI 2199
 CN Ariabel Sienna 300406
 CN Auvicorb BL
 CN B 4792
 CN Bayer S 11
 CN Bayferrox 105M
 CN Bayferrox 110
 CN Bayferrox 110M
 CN Bayferrox 111
 CN Bayferrox 120
 CN Bayferrox 120M
 CN Bayferrox 120N
 CN Bayferrox 120NM
 CN Bayferrox 130
 CN Bayferrox 130B
 CN Bayferrox 130BM
 CN Bayferrox 130M
 CN Bayferrox 140
 CN Bayferrox 140M
 CN Bayferrox 160M
 CN Bayferrox 180M
 CN Bayferrox 225
 CN Bayferrox 720N
 CN Bayferrox 8220
 CN Bayferrox 910
 CN Bayferrox BF 110
 CN Bayferrox Red 105M
 CN Bayferrox Red 130M
 CN Bayferrox Red 140M
 CN Bayferrox Red 160M
 CN Bayferrox Red 180M
 CN Bayoxide E 8710
 CN Bengara 217
 CN Bengara CH 2-223
 CN Bengara CM 25P

ADDITIONAL NAMES NOT AVAILABLE IN THIS FORMAT - Use FCN, FIDE, or ALL for DISPLAY

DR 448923-71-5, 12000-93-0, 12002-17-4, 12227-87-1, 8011-97-0, 8049-50-1,
 177715-24-1, 1343-09-5, 129131-59-5, 135507-53-8, 60880-86-6, 65637-71-0,
 147229-90-1, 147229-91-2, 90452-21-4, 110736-41-9, 160186-10-7,
 185464-44-2, 188357-78-0, 220787-06-4, 253310-52-0

MF Fe2 O3

CI COM, MAN

LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA,
 CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX,
 CHEMLIST, CIN, CSCHM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU,
 EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, HSDB*, IFICDB,
 IFIPAT, IFIUDB, IMSCOSEARCH, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC,
 PDLCOM*, PIRA, PROMT, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT,
 USPAT2, USPATFULL, VETU, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);
 CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC
 (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
 PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role
 in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical
 study); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation);
 PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES
 (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological
 study); CMBI (Combinatorial study); FORM (Formation, nonpreparative);
 MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC
 (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses);
 NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical
 study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU
 (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT
 (Reactant or reagent); USES (Uses)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

52973 REFERENCES IN FILE CA (1907 TO DATE)
 587 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 53009 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 13 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN

RN 124-38-9 REGISTRY

CN Carbon dioxide (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN Carbon oxide (CO2)

CN Carbon-12 dioxide

CN Carbon-12C dioxide-1602

CN Carbonic acid anhydride

CN Carbonic acid gas

CN Carbonic anhydride

CN Dry ice

CN Khladon 744

CN R 744

FS 3D CONCORD

DR 18923-20-1

MF C O2

CI COM

LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHM, CSNB, DDFU, DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2, ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PDLCOM*, PIRA, PROMT, PS, RTECS*, SPECINFO, TOXCENTER, TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report

RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)

RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)

O=C=O

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

180857 REFERENCES IN FILE CA (1907 TO DATE)
 694 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 180959 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 21 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L3 ANSWER 14 OF 14 REGISTRY COPYRIGHT 2004 ACS on STN

RN 57-13-6 REGISTRY

CN Urea (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

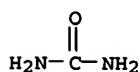
CN Aquacare

CN Aquadrate

CN B-I-K

CN Basodexan

CN Benural 70
 CN Carbamide
 CN Carbamimidic acid
 CN Carbonyl diamide
 CN Carmol 40
 CN Elaqua XX
 CN Eucerin 10% Urea Lotion
 CN Hyanit
 CN Isoarea
 CN Keratinamin
 CN Keratinamin Kowa
 CN NSC 34375
 CN Nutraplus
 CN Onychomal
 CN Optigen 1200
 CN Pastaron
 CN Pastaron 10
 CN Pastaron 20
 CN Pastaron 20 soft
 CN Pastaron soft
 CN Pseudourea
 CN Rubinol ST 010
 CN UR
 CN Urea perhydrate
 CN Ureaphil
 CN Ureophil
 CN Urepeal
 CN Urepeal L
 CN Urepearl
 CN Urevert
 CN Varioform II
 FS 3D CONCORD
 DR 30535-50-3
 MF C H4 N2 O
 CI COM
 LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, AQUIRE, BEILSTEIN*, BIOBUSINESS,
 BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB,
 CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CIN, CSCEM, CSNB, DDFU,
 DETHERM*, DIOGENES, DIPPR*, DRUGU, EMBASE, ENCOMPLIT, ENCOMPLIT2,
 ENCOMPPAT, ENCOMPPAT2, GMELIN*, HODOC*, HSDB*, IFICDB, IFIPAT, IFIUDB,
 IMSCOSEARCH, IPA, MEDLINE, MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC,
 PDLCOM*, PHAR, PIRA, PROMT, PS, RTECS*, SPECINFO, SYNTHLINE, TOXCENTER,
 TULSA, ULIDAT, USAN, USPAT2, USPATFULL, VETU, VTB
 (*File contains numerically searchable property data)
 Other Sources: DSL**, EINECS**, TSCA**
 (**Enter CHEMLIST File for up-to-date regulatory information)
 DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent;
 Preprint; Report
 RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study);
 CMBI (Combinatorial study); FORM (Formation, nonpreparative); MSC
 (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
 PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role
 in record)
 RLD.P Roles for non-specific derivatives from patents: ANST (Analytical
 study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC
 (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
 PRP (Properties); RACT (Reactant or reagent); USES (Uses)
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 study); CMBI (Combinatorial study); FORM (Formation, nonpreparative);
 MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC
 (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses);
 NORL (No role in record)
 RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical
 study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC
 (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process);
 PRP (Properties); RACT (Reactant or reagent); USES (Uses)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

73772 REFERENCES IN FILE CA (1907 TO DATE)
 3228 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 73822 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 9 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> b wpix

FILE 'WPIX' ENTERED AT 08:45:38 ON 08 OCT 2004
 COPYRIGHT (C) 2004 THE THOMSON CORPORATION

FILE LAST UPDATED: 6 OCT 2004 <20041006/UP>
 MOST RECENT DERWENT UPDATE: 200464 <200464/DW>
 DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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>>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE
<http://thomsonderwent.com/coverage/latestupdates/> <<<

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 GUIDES, PLEASE VISIT:
<http://thomsonderwent.com/support/userguides/> <<<

>>> NEW! FAST-ALERTING ACCESS TO NEWLY-PUBLISHED PATENT
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 FIRST VIEW - FILE WPIFV.
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>>> NEW DISPLAY FORMAT HITSTR ADDED ALLOWING DISPLAY OF
 HIT STRUCTURES WITHIN THE BIBLIOGRAPHIC DOCUMENT <<<

=> d all 14

L4 ANSWER 1 OF 1 WPIX COPYRIGHT 2004 THE THOMSON CORP on STN
 AN 2002-415718 [44] WPIX
 DNC C2002-117314
 TI Monitoring and controlling biocatalytic efficiency of wastewater treatment
 involves measuring concentration of internal storage molecule in sample
 wastewater to determine status of selected sample characteristics.
 DC A97 D15 D16 J04
 IN DRAGOTTA, D A; NAGARAJAN, V; THOMAS, S M
 PA (DRAG-I) DRAGOTTA D A; (NAGA-I) NAGARAJAN V; (THOM-I) THOMAS S M; (DUPO)
 DU PONT DE NEMOURS & CO E I
 CYC 23
 PI WO 2002020416 A2 20020314 (200244)* EN 39 C02F003-12
 RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
 W: CA JP US
 US 2002052016 A1 20020502 (200244) C12Q001-04
 EP 1337475 A2 20030827 (200357) EN C02F003-12
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 US 6737263 B2 20040518 (200433) B09B003-00
 JP 2004514545 W 20040520 (200434) 68 C02F003-34
 US 2004152151 A1 20040805 (200452) C12Q001-04 <--
 ADT WO 2002020416 A2 WO 2001-US27456 20010904; US 2002052016 A1 Provisional US
 2000-231025P 20000908, US 2001-940298 20010828; EP 1337475 A2 EP
 2001-970633 20010904, WO 2001-US27456 20010904; US 6737263 B2 Provisional
 US 2000-231025P 20000908, US 2001-940298 20010828; JP 2004514545 W WO
 2001-US27456 20010904, JP 2002-525046 20010904; US 2004152151 A1
 Provisional US 2000-231025P 20000908, Div ex US 2001-940298 20010828, US
 2004-761590 20040121
 FDT EP 1337475 A2 Based on WO 2002020416; JP 2004514545 W Based on WO
 2002020416; US 2004152151 A1 Div ex US 6737263
 PRAI US 2000-231025P 20000908; US 2001-940298 20010828;
 US 2004-761590 20040121
 IC ICM B09B003-00; C02F003-12; C02F003-34; C12Q001-04
 ICS C02F003-30
 AB WO 2002020416 A UPAB: 20020711
 NOVELTY - Monitoring and controlling the biocatalytic efficiency of
 wastewater treatment involves sampling wastewater from anaerobic, anoxic
 and/or aerobic stages of treatment processes. The concentration of an
 internal storage molecule in the sample is measured to determine the
 status of selected sample characteristics. The feed nutrient in an
 activated sludge is adjusted depending on the status.

DETAILED DESCRIPTION - The activated sludge contains a carbon influx, cultures of autotrophic, heterotrophic, and facultative microorganisms, a feed nutrient and an end electron acceptor.

An INDEPENDENT CLAIM is also included for method for maintaining a viable culture in activated sludge in the absence of carbon influx.

USE - For monitoring and controlling the biocatalytic efficiency of a waste water treatment process, in the production of polyhydroxyalkanoate (PHA) with bioreactor health and biocatalytic efficiency.

ADVANTAGE - Monitoring bioreactor health and maintaining viable cultures within the bioreactor are performed reliably, by making the correlation between the production of internal storage molecule and denitrification rate as a control strategy. The PHA level in the bacteria of the activated sludge can be easily measured and controlled by the nutrients in the bioreactor. In general, levels of PHA in excess of 15-20% dry weight of the biomass is an indication that the biocatalytic efficiency of the wastewater treatment process is impaired.

Dwg.0/7

FS CPI

FA AB

MC CPI: A12-W11J; D04-A01H; J04-C03

=> b home

FILE 'HOME' ENTERED AT 08:45:44 ON 08 OCT 2004

=>

=> b reg
 FILE 'REGISTRY' ENTERED AT 09:13:01 ON 08 OCT 2004
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
 COPYRIGHT (C) 2004 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 6 OCT 2004 HIGHEST RN 757927-15-4
 DICTIONARY FILE UPDATES: 6 OCT 2004 HIGHEST RN 757927-15-4

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

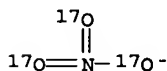
Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

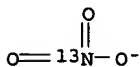
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L17 ANSWER 1 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 61880-25-9 REGISTRY
 CN Nitrate(2-), tri(oxo-17O)- (9CI) (CA INDEX NAME)
 MF N O3
 CI RIS
 LC STN Files: CA, CAPLUS
 DT.CA Caplus document type: Journal
 RL.NP Roles from non-patents: PRP (Properties)



1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 2 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 60091-12-5 REGISTRY
 CN Nitrate-13N (9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Nitrate (13NO31-)
 MF N O3
 LC STN Files: CA, CAPLUS, GMELIN*, TOXCENTER, USPATFULL
 (*File contains numerically searchable property data)
 DT.CA Caplus document type: Conference; Journal; Patent; Report
 RL.P Roles from patents: PREP (Preparation)
 RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)

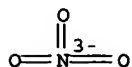


32 REFERENCES IN FILE CA (1907 TO DATE)
 32 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 3 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 59700-51-5 REGISTRY
 CN Nitrate(3-), trioxo- (9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Orthonitrite
 FS 3D CONCORD
 MF N O3
 LC STN Files: CA, CAPLUS, GMELIN*
 (*File contains numerically searchable property data)

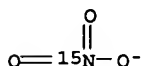
Searched by Noble Jarrell

DT.CA CAplus document type: Journal
 RL.NP Roles from non-patents: RACT (Reactant or reagent)



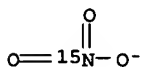
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 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 4 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
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 CN Nitrate-15N-1802 (9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Nitrate (15NO18021-)
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 LC STN Files: CA, CAPLUS
 DT.CA CAplus document type: Journal
 RL.NP Roles from non-patents: PRP (Properties)
 IL 20-18



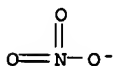
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L17 ANSWER 5 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
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 OTHER NAMES:
 CN Nitrate (15NO21801-)
 MF N O3
 LC STN Files: CA, CAPLUS
 DT.CA CAplus document type: Journal
 RL.NP Roles from non-patents: PRP (Properties)
 IL 0-18



1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

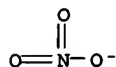
L17 ANSWER 6 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 36011-83-3 REGISTRY
 CN Nitrate, labeled with oxygen-18 (9CI) (CA INDEX NAME)
 FS 3D CONCORD
 MF N O3
 LC STN Files: CA, CAPLUS
 DT.CA CAplus document type: Journal
 RL.NP Roles from non-patents: PRP (Properties)
 IL 0-18



1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

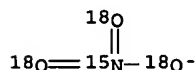
L17 ANSWER 7 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
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 MF N O3

LC STN Files: CA, CAPLUS
 DT.CA Caplus document type: Journal
 RL.NP Roles from non-patents: PRP (Properties)
 IL 20-18



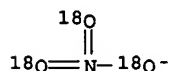
1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 8 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 36011-80-0 REGISTRY
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 MF N O3
 LC STN Files: CA, CAPLUS
 DT.CA Caplus document type: Journal
 RL.NP Roles from non-patents: PRP (Properties)



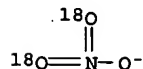
2 REFERENCES IN FILE CA (1907 TO DATE)
 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 9 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 26450-44-2 REGISTRY
 CN Nitrate-18O3 (8CI, 9CI) (CA INDEX NAME)
 MF N O3
 LC STN Files: CA, CAPLUS, GMELIN*
 (*File contains numerically searchable property data)
 DT.CA Caplus document type: Journal
 RL.NP Roles from non-patents: PRP (Properties)



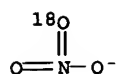
3 REFERENCES IN FILE CA (1907 TO DATE)
 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 10 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 26450-43-1 REGISTRY
 CN Nitrate (NO18O21-) (8CI) (CA INDEX NAME)
 MF N O3
 LC STN Files: CA, CAPLUS
 DT.CA Caplus document type: Journal
 RL.NP Roles from non-patents: PRP (Properties)



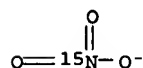
1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 11 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 26450-42-0 REGISTRY
 CN Nitrate-18O (8CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Nitrate (NO218O1-)
 MF N O3
 LC STN Files: CA, CAPLUS
 DT.CA Caplus document type: Journal
 RL.NP Roles from non-patents: PRP (Properties)



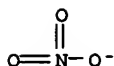
2 REFERENCES IN FILE CA (1907 TO DATE)
2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 12 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 20515-92-8 REGISTRY
CN Nitrate-15N (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Nitrate (15NO31-)
MF N O3
CI COM
LC STN Files: AGRICOLA, BIOBUSINESS, CA, CAPLUS, GMELIN*, TOXCENTER
(*File contains numerically searchable property data)
DT.CA Caplus document type: Conference; Journal; Patent; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



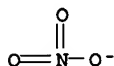
36 REFERENCES IN FILE CA (1907 TO DATE)
36 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 13 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
RN 14797-55-8 REGISTRY
CN Nitrate (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN Nitrate (NO3-)
CN Nitrate ion
CN Nitrate ion (NO3-)
CN Nitrate ion(1-)
CN Nitrate(1-)
CN Nitrate
CN Nitric acid, ion(1-)
FS 3D CONCORD
DR 23746-18-1, 73394-83-9, 34236-35-6
MF N O3
CI COM
LC STN Files: AGRICOLA, ANABSTR, AQUIRE, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMLIST, CIN, CSCHM; CSNB, DDFU, DETHERM*, DRUGU, EMBASE, GMELIN*, HSDB*, IFICDB, IFIPAT, IFIUDB, NIOSHTIC, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL, VETU, VTB
(*File contains numerically searchable property data)
DT.CA Caplus document type: Book; Conference; Dissertation; Journal; Patent; Preprint; Report
RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RLD.P Roles for non-specific derivatives from patents: ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)
RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
RLD.NP Roles for non-specific derivatives from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses)



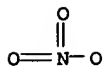
36601 REFERENCES IN FILE CA (1907 TO DATE)
 102 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 36623 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L17 ANSWER 14 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 12286-15-6 REGISTRY
 CN Nitrate(2-), trioxo- (9CI) (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Nitrogen oxide (NO3), ion(2-) (8CI)
 OTHER NAMES:
 CN Nitrate (NO32-)
 CN Nitrogen oxide (NO3) ion(2-)
 CN Nitrogen trioxide ion(2-)
 CN Trioxonitrate(2-)
 DR 16454-51-6, 23242-45-7
 MF N O3
 CI RIS
 LC STN Files: CA, CAPLUS, TOXCENTER, ULIDAT
 DT.CA Caplus document type: Conference; Journal; Patent; Report
 RL.P Roles from patents: PROC (Process)
 RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
 RLD.NP Roles for non-specific derivatives from non-patents: OCCU (Occurrence)



76 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 76 REFERENCES IN FILE CAPLUS (1907 TO DATE)

L17 ANSWER 15 OF 15 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 12033-49-7 REGISTRY
 CN Nitrogen oxide (NO3) (6CI, 8CI, 9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN Nitrate free radical
 CN Nitrate radical
 CN Nitrate radical (NO3)
 CN Nitrate
 CN Nitrogen trioxide
 CN Nitrogen trioxide (NO3)
 CN Nitrogen trioxide radical
 DR 17062-88-3, 65883-44-5, 72457-62-6, 74902-57-1, 75277-23-5, 38668-13-2
 MF N O3
 CI COM
 LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CEN, CHEMINFORMRX, CHEMLIST, CIN, CSNB, DETHERM*, IFICDB, IFIPAT, IFIUDB, PIRA, PROMT, TOXCENTER, TULSA, ULIDAT, USPAT2, USPATFULL (*File contains numerically searchable property data)
 DT.CA Caplus document type: Conference; Dissertation; Journal; Patent; Report
 RL.P Roles from patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
 RL.NP Roles from non-patents: ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative); MSC (Miscellaneous); OCCU (Occurrence); PREP (Preparation); PROC (Process); PRP (Properties); RACT (Reactant or reagent); USES (Uses); NORL (No role in record)
 RLD.NP Roles for non-specific derivatives from non-patents: OCCU (Occurrence); RACT (Reactant or reagent)



1267 REFERENCES IN FILE CA (1907 TO DATE)
 2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 1267 REFERENCES IN FILE CAPLUS (1907 TO DATE)
 11 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

=> => d his

(FILE 'HOME' ENTERED AT 10:50:41 ON 08 OCT 2004)

FILE 'HCAPLUS' ENTERED AT 10:54:42 ON 08 OCT 2004

L1 55305 SLUDGES+OLD,NT/CT OR SOLID WASTES+OLD/CT (L) SLUDGE?
 L2 50173 MICROORGANISM+OLD,NT/CT
 L3 108731 (BACTERIA OR EUBACTERIA)/CW
 L4 3041 FEED ADDITIVES/CT
 L5 9377 FEED+OLD,NT/CT (L) (NUTRIENT? OR NUTRIT? OR CONC?)

FILE 'REGISTRY' ENTERED AT 10:56:58 ON 08 OCT 2004

L6 19 NO3 AND NITRATE NOT ((PMS OR MAN OR IDS)/CI OR COMPOUND OR COMP
 L7 15 L6 NOT (NITROSODIOXY OR NITROSYL NITRATE OR PEROXYNITRITE)

FILE 'HCAPLUS' ENTERED AT 11:02:02 ON 08 OCT 2004

L8 337331 NITRATE OR NITRATE (1A) (TRIOXO OR ION) OR NITRATO OR NITRIC (1
 L9 37921 L7
 L10 1961 POLYESTER#/CW (L) HYDROXYCARBOXYLIC (1A) ACID
 L11 273450 (WASTE (L) TREAT? OR DISPOSAL?)/CC,SX
 L12 269444 (L1 OR L2 OR L11) AND (PY<=2000 OR AY<=2000 OR PRY<=2000 OR PRD
 E DRAGOTTA D/AU
 L13 3 E3-4
 E NAGARAJAN V/AU
 L14 246 E3-5, E9
 E THOMAS S/AU
 L15 412 E3, E23
 E THOMAS STUART/AU
 L16 26 E3, E5-6
 L17 56078 (DUPONT OR DU (1A) PONT)/CS, PA
 L18 2406 L1 AND L2-3 AND (PY<=2000 OR AY<=2000 OR PRY<=2000 OR PRY<20000
 L19 3 L18 AND L4-5
 L20 0 L19 AND L13-17
 L21 3 L19 AND (PY<=2000 OR AY<=2000 OR PRY<=2000 OR PRY<20000908 OR A
 SEL AN 2
 L22 1 E1-2 AND L21
 L23 193 L18 AND L8-9
 L24 0 L23 AND L13-17
 L25 10 L23 AND P/DT AND US/PC
 SEL AN 1 3 6 8
 L26 4 E3-10 AND L25
 L27 0 L1 AND L2-3 AND L13-17
 L28 70 L1 AND L13-17
 L29 5 L28 AND L8-9
 L30 1 L18 AND L10

FILE 'WPIX' ENTERED AT 11:45:16 ON 08 OCT 2004

L31 97614 (A12-W11J OR A12-W11 OR A12-W12 OR D04-B10? OR D04-B11 OR D04-B
 L32 60696 (A12-W11L OR B04-B02B? OR C04-B02B? OR B04-F01 OR C04-F01 OR B0
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 E R24028/DCN
 E E3+ALL
 L34 198 R24028?/DCN
 E R24090/DCN
 L35 0 R24090/DCN
 E NITRATE/DCN
 E E4+ALL
 L36 697 R06352/DCN
 L37 60995 (NITRATE OR NITRATE (1A) (TRIOXO OR ION) OR NITRATO OR NITRIC (
 L38 0 L33 AND L34
 L39 18 L33 AND L36-37
 E DRAGOTTA D/AU
 L40 1 E4
 E NAGARAJAN V/AU
 L41 33 E3-4

E THOMAS S/AU
 L42 190 E3,E17
 L43 24601 (DUPONT OR DU (1A) PONT)/CS,PA
 L44 0 L39 AND L40-43
 L45 5755 (FEED (1A) (NUTRIENT? OR NUTRIT? OR ADDIT?))/BIX
 L46 0 L45 AND L39
 L47 6 L45 AND L33
 SEL AN L39 2 4
 L48 2 E1-2 AND L39

=> b hcap

FILE 'HCAPLUS' ENTERED AT 12:02:21 ON 08 OCT 2004
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 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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FILE COVERS 1907 - 8 Oct 2004 VOL 141 ISS 16
 FILE LAST UPDATED: 7 Oct 2004 (20041007/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d all 129 tot

L29 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2002:185025 HCAPLUS
 DN 136:251844
 ED Entered STN: 15 Mar 2002
 TI Polyhydroxyalkanoate levels as an indicator of bioreactor health
 IN Dragotta, Dominic A.; Nagarajan, Vasantha;
 Thomas, Stuart M.
 PA E. I. Du Pont de Nemours & Co., USA
 SO PCT Int. Appl., 39 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C02F003-12
 CC 60-1 (Waste Treatment and Disposal)
 Section cross-reference(s): 10
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002020416	A2	20020314	WO 2001-US27456	20010904
WO 2002020416	A3	20020613		
W: CA, JP, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
US 2002052016	A1	20020502	US 2001-940298	20010828
US 6737263	B2	20040518		
EP 1337475	A2	20030827	EP 2001-970633	20010904
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
JP 2004514545	T2	20040520	JP 2002-525046	20010904
US 2004152151	A1	20040805	US 2004-761590	20040121
PRAI US 2000-231025P	P	20000908		
US 2001-940298	A3	20010828		
WO 2001-US27456	W	20010904		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2002020416	ICM	C02F003-12
JP 2004514545	FTERM	4D028/AC03; 4D028/BB02; 4D028/BB07; 4D028/CA00; 4D028/CB03; 4D028/CC00; 4D040/BB42; 4D040/BB91; 4D040/BB93; 4D040/DD03; 4D040/DD14; 4D040/DD31

- AB A method has been developed for monitoring and controlling the biocatalytic efficiency of a wastewater treatment process comprising: (a) providing an activated sludge environment; (b) sampling wastewater from anaerobic, anoxic and/or aerobic stages of the treatment process; (c) measuring the concentration of polyhydroxyalkanoates or glycogen present in the sample to determine the status of a selected sample characteristic; and (d) adjusting the feed nutrient in the activated sludge environment depending on the status of the selected sample wherein the biocatalytic efficiency of a wastewater treatment process is controlled. The activated sludge environment provided comprises: (i) a carbon influx; (ii) cultures of autotrophic, heterotrophic and facultative microorganisms; (iii) a feed nutrient; and (iv) an end electron acceptor. In general, levels of PHA in excess of about 15 to about 20 dry weight of the biomass is an indication that the biocatalytic efficiency of the wastewater treatment process is impaired.
- ST monitoring control biocatalytic efficiency activated sludge wastewater treatment; polyhydroxyalkanoate monitoring activated sludge wastewater treatment bioreactor
- IT Wastewater treatment
(activated-sludge process, apparatus, performance of; method for monitoring and controlling biocatalytic efficiency of)
- IT Wastewater treatment
(activated-sludge process; method for monitoring and controlling biocatalytic efficiency of)
- IT Proteobacteria
(alpha, beta, and gamma; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process employing Proteobacteria)
- IT Alcohols, biological studies
Amines, biological studies
Amino acids, biological studies
Carbohydrates, biological studies
Proteins
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(carbon source; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)
- IT Denitrification
(efficiency of; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)
- IT Polyesters, occurrence
RL: OCU (Occurrence, unclassified); OCCU (Occurrence)
(hydroxycarboxylic acid-based; use in method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)
- IT Acinetobacter
Alcaligenes
Azoarcus
Burkholderia
Paracoccus
Pseudomonas
Rhodococcus
Sphingomonas
(method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process employing Proteobacteria)
- IT Acids, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(organic, carbon source; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)
- IT 1309-37-1, Ferric oxide, biological studies 7782-44-7, Oxygen, biological studies 10024-97-2, Nitrous oxide, biological studies 14797-65-0, Nitrite, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(end electron acceptor; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)
- IT 14797-55-8, Nitrate, biological studies 14808-79-8, Sulfate, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(feed nutrient and end electron acceptor; method for monitoring and controlling biocatalytic efficiency of activated sludge wastewater treatment process)

IT 57-13-6, Urea, biological studies 7664-41-7, Ammonia, biological studies
14265-44-2, Phosphate, biological studies 18496-25-8, Sulfide
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(feed nutrient; method for monitoring and controlling biocatalytic
efficiency of activated sludge wastewater treatment process)

IT 124-38-9, Carbon dioxide, processes 1320-61-2, Hydroxybutyrate
9005-79-2, Glycogen, processes 50853-48-0, Pentanoic acid, hydroxy-
RL: BCP (Biochemical process); FMU (Formation, unclassified); BIOL
(Biological study); FORM (Formation, nonpreparative); PROC (Process)
(method for monitoring and controlling biocatalytic efficiency of
activated sludge wastewater treatment process)

L29 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:610370 HCAPLUS
DN 135:375997
ED Entered STN: 23 Aug 2001
TI New DuPont wastewater management facility at Victoria, Texas
AU Robertaccio, F. L.; Beeman, R. E.; Leigh, J. B.; McManus, C. N.
CS E.I DuPont de Nemours, Wilmington, DE, 19898, USA
SO Water Environment Federation and Purdue University Industrial Wastes
Technical Conference, St. Louis, MO, United States, May 21-24, 2000
(2000), 446-465 Publisher: Water Environment Federation, Alexandria, Va.
CODEN: 69BRGV
DT Conference; (computer optical disk)
LA English
CC 60-1 (Waste Treatment and Disposal)
Section cross-reference(s): 37

AB In August 1998 the DuPont Nylon Intermediates manufacturing plant at Victoria,
Texas, commenced operation of a new wastewater management facility to
replace deepwell disposal of wastewater. The new wastewater management
facility features an innovative anoxic/aerobic biol. treatment plant, a
53-acre post treatment constructed wetland, and a 200-acre area for
demonstration of the beneficial reuse of biosolids. The use of innovative
processes produced a design basis and scope that reduced the total
end-of-pipe wastewater management capital cost estimate from \$100 million in
1991 to an actual cost of .apprx.\$40 million. Cost redns. were achieved
through a combination of conversion of former byproducts into coproducts,
manufacturing process changes, and, recycle, recovery and reuse of ingredients.
The wastewater treatment process is working extremely well with COD
removal approaching 99% and complete removal of nitrate N.
Wetland and beneficial reuse performance has met or exceeded expectations.
This paper covers technol. innovation, design basis, equipment
type/sizing, performance, risk management, cost, and key learning's for
the 3 portions of the wastewater management facility (i.e. biol.
treatment, wetland and beneficial reuse).

ST aerobic anaerobic nylon wastewater
IT Wastewater treatment sludge
(DuPont wastewater management facility at Victoria, Texas)

IT Polyamide fibers, miscellaneous
RL: MSC (Miscellaneous)
(DuPont wastewater management facility at Victoria, Texas)

IT Nitrates, processes
RL: REM (Removal or disposal); PROC (Process)
(DuPont wastewater management facility at Victoria, Texas)

IT Nitrites
RL: REM (Removal or disposal); PROC (Process)
(DuPont wastewater management facility at Victoria, Texas)

IT Wastewater treatment
(aerobic; DuPont wastewater management facility at Victoria, Texas)

IT Wastewater treatment
(anaerobic; DuPont wastewater management facility at Victoria, Texas)

IT Wastewater treatment
(denitrification; DuPont wastewater management facility at Victoria,
Texas)

IT Wastewater treatment
(land application, wetland; DuPont wastewater management facility at
Victoria, Texas)

IT Wastewater treatment
(nitrification; DuPont wastewater management facility at Victoria,
Texas)

IT 14798-03-9, Ammonium, processes
RL: REM (Removal or disposal); PROC (Process)
(DuPont wastewater management facility at Victoria, Texas)

RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

(1) Duckworth, R; Strategic Networking for the 21st Century 1999

L29 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1997:554260 HCAPLUS
 DN 127:209786
 ED Entered STN: 30 Aug 1997
 TI Intrinsic remediation in a wastewater sludge surface impoundment
 AU Wood, Kenneth N.; Swindoll, C. Michael; Hartten, Andrew S.; Lee, Michael D.; Bishop, Arlen L.
 CS DuPont Company, E.I. du Pont de Nemours and Company, Inc. Engineering, Wilmington, DE, 19898, USA
 SO Proceedings - WEFTEC '96, Annual Conference & Exposition, 69th, Dallas, Oct. 5-9, 1996 (1996), Volume 3, 237-246 Publisher: Water Environment Federation, Alexandria, Va.
 CODEN: 64VGAN
 DT Conference
 LA English
 CC 60-4 (Waste Treatment and Disposal)
 Section cross-reference(s): 61
 AB Intrinsic remediation has been demonstrated as a viable corrective action alternative in a 3 ha, 30 m deep, surface impoundment that received wastewater biosolids, fly ash and other materials from an organic chemical manufacturing facility. Residual impoundment constituents include acetone, aniline, 2-butanone, p-cresol, benzene, other orgs. and heavy metals. A field and laboratory evaluation was conducted to assess whether these constituents were being biodegraded or immobilized in the sludge/fly ash media. In situ sampling of the impoundment was conducted along with surrounding groundwater characterization. Laboratory microcosms with actual pond materials demonstrated an active indigenous microbial population capable of degrading the residual orgs. under aerobic, denitrifying, sulfate-reducing and methanogenic conditions that exist in various zones of the impoundment. Abiotic processes (sorption, oxidation-reduction and precipitation) are also contributing to the destruction and immobilization of inorg. and semi-volatile organic constituents. Downgradient monitoring well data and groundwater flow path modeling confirm that the offsite groundwater quality is not being impacted. Intrinsic remediation offers significant environmental benefits over other more costly and intrusive corrective action alternatives and should be allowed to continue.
 ST intrinsic remediation wastewater sludge surface impoundment
 IT Ashes (residues)
 (fly; intrinsic remediation in wastewater sludge surface impoundment)
 IT Environmental modeling
 Wastewater treatment sludge
 (intrinsic remediation in wastewater sludge surface impoundment)
 IT Heavy metals
 Nitrates, occurrence
 Nitrites
 Sulfates, occurrence
 Sulfides, occurrence
 RL: POL (Pollutant); OCCU (Occurrence)
 (intrinsic remediation in wastewater sludge surface impoundment)
 IT Semivolatile substances
 (organic;; intrinsic remediation in wastewater sludge surface impoundment)
 IT 62-53-3, Benzenamine, occurrence 67-64-1, 2-Propanone, occurrence 71-43-2, Benzene, occurrence 74-82-8, Methane, occurrence 78-93-3, 2-Butanone, occurrence 85-68-7, Butylbenzyl phthalate 86-73-7, Fluorene 91-20-3, Naphthalene, occurrence 95-47-6, o-Xylene, occurrence 100-41-4, Ethylbenzene, occurrence 100-42-5, occurrence 106-44-5, p-Cresol, occurrence 108-38-3, m-Xylene, occurrence 123-91-1, 1,4-Dioxane, occurrence 7439-89-6, Iron, occurrence 7439-92-1, Lead, occurrence 7439-96-5, Manganese, occurrence 7440-02-0, Nickel, occurrence 7440-38-2, Arsenic, occurrence 7440-39-3, Barium, occurrence 7440-43-9, Cadmium, occurrence 7440-47-3, Chromium, occurrence 7440-50-8, Copper, occurrence 7440-62-2, Vanadium, occurrence 7440-66-6, Zinc, occurrence 7664-41-7, Ammonia, occurrence 7723-14-0, Phosphorus, occurrence 7727-37-9, Nitrogen, occurrence
 RL: POL (Pollutant); OCCU (Occurrence)
 (intrinsic remediation in wastewater sludge surface impoundment)
 L29 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1996:292610 HCAPLUS
 DN 124:324368
 ED Entered STN: 17 May 1996
 TI Planning for the elimination of deepwells: Development of a process to treat a high COD, high nitrate wastewater

AU Koon, John H.; Griffith, David B.; Robertaccio, Francis L.; Hockenbury, Melvin R.; Dell, Janet Jensen; McManus, Cynthia N.; Dragotta, Dominic A.

CS Parsons Engineering-Science, Atlanta, GA, USA

SO Proceedings of the Water Environment Federation Annual Conference & Exposition, 68th, Miami Beach, Fla., Oct. 21-25, 1995 (1995), Volume 3, 409-420 Publisher: Water Environment Federation, Alexandria, Va.
CODEN: 62RLA4

DT Conference

LA English

CC 60-1 (Waste Treatment and Disposal)
Section cross-reference(s): 38

AB Bench scale treatability studies were conducted to determine kinetic parameters and achievable effluent characteristics for the biol. treatment of process wastewaters from the DuPont nylon intermediates plant at Victoria, Texas. DuPont Victoria will design and construct a biotreatment system by 1997 to handle organic wastes that are currently being managed using deepwell technol. The new treatment facility will treat 2 major wastestreams: an acids waste which contains a COD of 8600 mg/L, high concns. of several organic acids, and has a NO₃- concentration of 3300 mg/L and a 311 waste which contains various nitriles, a COD of 3400 mg/L, some ammonia, and .apprx.30 mg/L of cyanide. Three single sludge, 2-stage, continuous-flow biol. reactors were operated at a range of sludge ages. Results indicated that the organic constituents in the wastes were readily treated in the biol. system. Nitrate was readily reduced by the denitrification process using primarily the organic acids as the organic substrate. The sludge yield for the system was low. Other unique treatability features included stable operation with influent pH 2-3, high temperature (30-40.degree.) operation, and very high specific nitrate removal rates.

ST nylon intermediate wastewater biol treatment

IT Polyamides, miscellaneous
RL: MSC (Miscellaneous)
(nylon intermediate wastewater biol. treatment)

IT Cyanides, processes
RL: REM (Removal or disposal); PROC (Process)
(nylon intermediate wastewater biol. treatment)

IT Nitrates, processes
RL: REM (Removal or disposal); PROC (Process)
(nylon intermediate wastewater biol. treatment)

IT Nitriles, processes
RL: REM (Removal or disposal); PROC (Process)
(nylon intermediate wastewater biol. treatment)

IT Nitrites
RL: REM (Removal or disposal); PROC (Process)
(nylon intermediate wastewater biol. treatment)

IT Wastewater treatment
(activated-sludge process, nylon intermediate wastewater biol. treatment)

IT Wastewater treatment
(anoxic, nylon intermediate wastewater biol. treatment)

IT Wastewater treatment
(biol., nylon intermediate wastewater biol. treatment)

IT Wastewater treatment
(denitrification, nylon intermediate wastewater biol. treatment)

IT 7664-41-7, Ammonia, processes
RL: REM (Removal or disposal); PROC (Process)
(nylon intermediate wastewater biol. treatment)

L29 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1983:61809 HCAPLUS

DN 98:61809

ED Entered STN: 12 May 1984

TI Physical and chemical characterization of synthetic calcined sludge

AU Slates, R. V.; Mosley, W. C., Jr.; Tiffany, B.; Stone, J. A.

CS Savannah River Lab., Du Pont de Nemours, E. I., and Co., Aiken, SC, USA

SO Report (1982), DP-1541; Order No. DE82012373, 72 pp. Avail.: NTIS
From: Gov. Rep. Announce. Index (U. S.) 1982, 82(24), 5110

DT Report

LA English

CC 71-11 (Nuclear Technology)

AB Calcined synthetic sludge was chemical characterized in support of engineering studies to design a processing plant to solidify highly radioactive waste at the Savannah River Plant. An anal. technique is described which provides quant. data by mass spectrometric anal. of gases evolved during thermogravimetric anal. without measurements of gas flow

rates or mass spectrometer sensitivities. Calcined sludge consisted primarily of amorphous particles of hydrous oxides with Fe, Mn, Ni and Ca distributed fairly uniformly throughout the powder. Fe, Mn, Ni, and Ca existed in forms that are highly insol. in water, but Al, sulfate, nitrate and Na exhibit relative water solubilities that increase in the given order from 60 to 94%. Evolved gas anal. in a He atmosphere showed that calcined sludge was completely dehydrated by heating to 400.degree., CO₂ was evolved at 100-700.degree., and O was evolved at 400-1000.degree.. Evolved gas analyses are also reported for uncalcined sludge. A spinel-type oxide similar to NiFe₂O₄ was detected at very low level in calcined sludge.

ST sludge synthetic calcined characteristic; radioactive waste high level sludge
 IT Calcination
 (of synthetic sludge, particle distribution in)
 IT Slimes and Sludges
 (synthetic calcined, characteristics of, radioactive waste solidification in relation to)
 IT Radioactive wastes
 (high-level, calcined synthetic sludge characteristics in relation to)
 IT 7439-89-6, properties 7439-96-5, properties 7440-02-0, properties 7440-70-2, properties
 RL: PRP (Properties)
 (distribution of, in calcined synthetic sludge)
 IT 124-38-9P, preparation 7782-44-7P, preparation
 RL: PREP (Preparation)
 (evolution of, from calcination of synthetic sludge)
 IT 12168-54-6P
 RL: FORM (Formation, nonpreparative); PREP (Preparation)
 (formation of, in calcined sludge)
 IT 7429-90-5, properties 7440-23-5, properties 14797-55-8, properties 14808-79-8, properties
 RL: PRP (Properties)
 (solubility of, in synthetic calcined sludge)

=> d all 122 tot

L22 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1998:427854 HCAPLUS
 DN 129:120094
 ED Entered STN: 11 Jul 1998
 TI Soil microorganisms for manufacturing feed and fertilizer from organic waste
 IN Fukunaga, Isami
 PA Fukunaga, Isami, Japan
 SO Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C12N001-00
 ICS A01K001-015; A23K001-10; C05F011-08; C05F017-00
 CC 10-2 (Microbial, Algal, and Fungal Biochemistry)
 Section cross-reference(s): 17, 19, 60

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 10174582	A2	19980630	JP 1996-336859	19961217 <--
PRAI JP 1996-336859		19961217 <--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 10174582	ICM	C12N001-00
	ICS	A01K001-015; A23K001-10; C05F011-08; C05F017-00
AB		Organic waste such as agricultural waste is inoculated with the soil microorganisms to manufacture feed, organic fertilizer, feed additive, etc.
ST		soil microorganism org waste treatment
IT		Wastes (agricultural; soil microorganisms for manufacturing feed and fertilizer from organic waste)
IT		Wastewater treatment (biol.; soil microorganisms for manufacturing feed and fertilizer from organic waste)
IT		Solid wastes (domestic; soil microorganisms for manufacturing feed and fertilizer from organic waste)

IT Fertilizers
 RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP
 (Preparation)
 (organic; soil microorganisms for manufacturing feed and fertilizer from organic waste)

IT Environmental pollution control
 Excretions
 Feed
 Feed additives
 Soil microorganism
 Urine
 Wastewater treatment sludge
 (soil microorganisms for manufacturing feed and fertilizer from organic waste)

=> d all 126 tot

L26 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2004:176540 HCAPLUS

DN 140:222453

ED Entered STN: 04 Mar 2004

TI Microbial enzyme-enhanced organic-inorganic solid-chemical composition and methods for anaerobic bioremediation

IN Hince, Eric Christian

PA Geovation Technologies, Inc., USA

SO U.S., 17 pp., Cont.-in-part of U.S. Ser. No. 441,484.

CODEN: USXXAM

DT Patent

LA English

IC ICM C12N011-18

NCL 435262000; 435262500; 071006000; 210611000; 423-DIG.17

CC 60-1 (Waste Treatment and Disposal)

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6699707	B1	20040302	US 2000-690395	20001017 <--
	US 6423531	B1	20020723	US 1999-441484	19991117 <--
PRAI	US 1999-441484	A2	19991117	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6699707	ICM	C12N011-18
	NCL	435262000; 435262500; 071006000; 210611000; 423-DIG.17
US 6699707	ECLA	B09C001/08; B09C001/10

AB The present invention discloses the formulation and use of an advanced solid-media chemical composition which includes both plant-derived and inorg. components which is designed and intended to enhance the removal of a broad range of recalcitrant organic and inorg. contaminants in the environment by providing an improved means of promoting the anaerobic, biol. mediated degradation, transformation, and/or detoxification of the contaminants which may be present in solid and liquid wastes, soils, sediments, and water bodies. The invention provides for improved means of (i) promoting the solid-phase extraction, absorption, and adsorption of recalcitrant contaminants from contaminated media, (ii) creating, enhancing, and maintaining anaerobic and highly reducing conditions (i.e., neg. Eh values); (iii) providing sources of carbonaceous co-substrates, inorg., and organic anaerobic electron acceptors, and organic and inorg. nutrients to promote the growth of contaminant-degrading microorganisms, and (iv) providing sources of inoculum of naturally occurring microorganisms which act to promote the biodegrdn. of contaminants. Thus, application of a composition containing alfalfa meal and cotton lint, Ancor Image 100 (sponge iron), pyrolusite, and yellow boy (a biogenic ferric oxyhydroxide obtained from an acid mine drainage site) to DDT- and toxaphene-contaminated soil resulted in rapid degradation of the pesticides with half-times of 13 days. This composition was also successfully used to reduce PCB and PAH content of contaminated gypsum sludge.

ST anaerobic bioremediation plant material iron manganese bacteria fungi enzyme

IT Sludges
 (aqueous; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)

IT Polycyclic compounds

RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)

(aromatic hydrocarbons; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)

- IT Remediation
(bioremediation; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Aegilops
Cannabaceae
Fabaceae
Glycine (genus)
Gossypium hirsutum
Lathyrus
Lespedeza
Medicago
Phaeophyceae
Sargassum
Trifolium
Triticum aestivum
Vicia
(composition containing material from; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Avena sativa
Hordeum vulgare
Humulus
Secale cereale
(fibrous materials or wastes from; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Microorganism
(from acid mine drainage; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Sludges
(gypsum; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Wastes
(industrial; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Eubacteria
(legume-associated; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Polyphosphates
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(linear; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Eubacteria
(metal-reducing; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Phosphates, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(metaphosphates, ringed; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Aquatic sediments
Arthrobacter
Aspergillus
Bacillus (bacterium genus)
Bradyrhizobium
Clostridium
Fibrobacter
Geobacter
Groundwaters
Hazardous wastes
Nocardia
Pseudomonas
Rhizobium
Soil bacteria
Soils
Surface waters
Trichoderma
Wastewater treatment
(microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Fulvic acids
Humic acids
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES
(Uses)
(microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)

- IT Pesticides
(organochlorine; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Eubacteria
Fungi
(plant fiber-degrading; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Aromatic hydrocarbons, processes
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(polycyclic; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT Polyphosphoric acids
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(sodium salts; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT 11115-92-7, Iron hydroxide oxide
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(biogenic (yellow boy); microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT 60-00-4, EDTA, biological studies 77-92-9, Citric acid, biological studies 139-13-9, Nitrilotriacetic acid 994-36-5, Sodium citrate 7631-99-4, Sodium nitrate, biological studies 7757-79-1, Potassium nitrate, biological studies 7785-84-4, Sodium trimetaphosphate 9000-92-4, Amylase 9001-62-1, Lipase 9001-92-7, Protease 9012-54-8, Cellulase 9015-78-5, Glucanase 9025-56-3, Hemicellulase 10377-66-9, Manganese nitrate 10421-48-4, Ferric nitrate 12174-34-4, Psilomelane 14854-26-3, Pyrolusite 17141-63-8, Manganous nitrate hexahydrate 19768-33-3D, Manganese(IV), minerals, biological studies 20694-39-7, Manganous nitrate tetrahydrate 61538-65-6, Potassium sodium nitrate
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT 50-29-3, DDT, processes 92-52-4D, 1,1'-Biphenyl, chloro derivs. 8001-35-2, Toxaphene
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT 7439-96-5, Manganese, biological studies 12597-69-2, Steel, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(particles; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)
- IT 7439-89-6, Iron, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(porous particles; microbial enzyme-enhanced organic-inorg. solid-chemical composition and methods for anaerobic bioremediation)

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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- (2) Aust; US 4891320 A 1990 HCAPLUS
- (3) Batchelor; US 5789649 A 1998 HCAPLUS
- (4) Cervelli; US 5443975 A 1995 HCAPLUS
- (5) Cunningham; US 5340376 A 1994
- (6) Dickerson; US 5609667 A 1997
- (7) Garrison; US 5078899 A 1992
- (8) Gill; US 5525139 A 1996 HCAPLUS
- (9) Gill; US 5609668 A 1997 HCAPLUS
- (10) Gillham; US 5266213 A 1993 HCAPLUS
- (11) Gray; US 5902744 A 1999 HCAPLUS
- (12) Hince; US 6020185 A 2000 HCAPLUS
- (13) Hince; US 6423531 B1 2002 HCAPLUS
- (14) Lamar; US 5476788 A 1995 HCAPLUS
- (15) Pinckard; US 5100455 A 1992 HCAPLUS
- (16) Rothmel; US 5567324 A 1996 HCAPLUS
- (17) Seech; US 5411664 A 1995 HCAPLUS
- (18) Seech; US 5618427 A 1997 HCAPLUS
- (19) Szejtli; US 5425881 A 1995

Searched by Noble Jarrell

L26 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:355497 HCAPLUS

DN 138:357854

ED Entered STN: 09 May 2003

TI Biological treatment process

IN Khudenko, Boris M.

PA USA

SO U.S. Pat. Appl. Publ., 16 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM C02F003-30

NCL 210603000

CC 60-1 (Waste Treatment and Disposal)

Section cross-reference(s): 47

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003085171	A1	20030508	US 2001-10271	20011105 <--
PRAI	US 2001-10271		20011105 <--		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2003085171	ICM	C02F003-30
	NCL	210603000

AB A method of biol. treatment of wastewater with biomass is presented, the wastewater and the biomass forming a mixed liquor in a tall stacking reactor with a top, a bottom, and an essentially horizontal partition between the top and the bottom, comprising: (a) at least one anaerobic treatment step conducted between the bottom and the partition, a digestion gas comprising CH₄ and CO₂ is formed in the anaerobic treatment, (b) a step of mixing the mixed liquor in the anaerobic step by at least one controllable gaslift with a gas other than the digestion gas, and (c) at least one step of treatment of the wastewater conducted between the partition and the top of the reactor. The latter step is selected from: aerobic treatment, aerobic treatment with aeration by air, aerobic treatment with aeration by O₂, aerobic treatment with nitrification, aerobic treatment with denitrification, aerobic treatment with phosphorus removal, anoxic treatment, treatment with iron as intermediate oxidation-reduction specie, anaerobic hydrolysis treatment, anaerobic acetogenic treatment, anaerobic acidogenic treatment, anaerobic sulfate reduction treatment, anaerobic methanogenic treatment, and combinations thereof. Pressurized digestion gases, primarily CO₂ and CH₄, generated in the anaerobic section are collected under the partition. The process is further improved by providing a recuperable alkalinity and stripping of biol. generated CO₂ so that the free CO₂ concentration in the anaerobic mixed liquor is very low and a CH₄-rich digestion gas is produced. Production of pressurized CH₄-rich digestion gas is the major benefit of the process. Other improvements are in the controllable gaslift mixing with gases other than digestion gases, improved process performance with increasing operating temps. due to bioheating, and improved solid-liquid separation due to the use of the distillation techniques making use of the bioheating and heat recycle.

ST stacked bioreactor anaerobic aerobic wastewater treatment methane digestion gas; biol wastewater treatment stacked reactor controllable gaslift mixing

IT Nutrients

(addition of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

IT Wastewater treatment

(aerobic; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

IT Wastes

(agricultural, treatment of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

IT Bioreactors

(air-lift; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

IT Wastewater treatment

(anaerobic; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

IT Wastewater treatment

(anoxic; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

IT Soils

(contaminated, treatment of; biol. treatment of wastewater with biomass

- in stacked reactor to produce methane-rich digestion gas)
- IT Wastewater treatment
(distillation, for separation of solids and liqs.; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT Air
(gaslift gas; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT Wastes
(industrial, treatment of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT Nutrients
(micronutrients, addition of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT Wastewater treatment
(mixing, gas-lift; controllable; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT Lagoon waters
Pond waters
(polluted; treatment of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT Intestinal bacteria
(probiotic, addition of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT Redox agents
(recuperable; addition of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT Acids, uses
Alkali metal hydroxides
Bases, uses
RL: MOA (Modifier or additive use); USES (Uses)
(recuperable; addition of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT Bioreactors
(stacking; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT Biomass
Guano
Hazardous wastes
Manure
Wastewater treatment sludge
(treatment of; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT 74-82-8, Methane, processes
RL: BCP (Biochemical process); FMU (Formation, unclassified); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT 124-38-9, Carbon dioxide, processes
RL: BCP (Biochemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); REM (Removal or disposal); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT 7727-37-9, Nitrogen, uses 7782-44-7, Oxygen, uses 11104-93-1, Nitrogen oxide, uses
RL: NUU (Other use, unclassified); USES (Uses)
(gaslift gas; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)
- IT 7439-89-6, Iron, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(redox species; biol. treatment of wastewater with biomass in stacked reactor to produce methane-rich digestion gas)

L26 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:315411 HCAPLUS

DN 136:329912

ED Entered STN: 26 Apr 2002

TI Biodegradation of ethers using a bacterial culture

IN Salanitro, Joseph Patrick

PA USA

SO U.S. Pat. Appl. Publ., 15 pp., Cont.-in-part of U. S. 6,238,906.

CODEN: USXXCO

DT Patent

LA English

IC ICM C12P039-00
ICS C12S001-00; B09B003-00; C02F009-00
NCL 435262500
CC 60-1 (Waste Treatment and Disposal)
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002048808	A1	20020425	US 1999-438595	19991112 <--
	US 5750364	A	19980512	US 1995-465996	19950606 <--
	US 6238906	B1	20010529	US 1999-292037	19990414 <--
	WO 2000063343	A2	20001026	WO 2000-EP3254	20000410 <--
	WO 2000063343	A3	20010222		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
EP	1169431	A2	20020109	EP 2000-926874	20000410 <--
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
PRAI	US 1995-465996	A2	19950606	<--	
	US 1999-292037	A2	19990414	<--	
	US 1999-438595	A	19991112	<--	
	US 1999-439887	A	19991112	<--	
	US 1999-439905	A	19991112	<--	
	US 1999-439977	A	19991112	<--	
	WO 2000-EP3254	W	20000410	<--	

CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	US 2002048808	ICM	C12P039-00
		ICS	C12S001-00; B09B003-00; C02F009-00
		NCL	435262500
AB	A bacterial culture capable of degrading ethers, especially branched alkylethers including MTBE, under aerobic conditions has been prepared		
ST	methyl tert butyl ether degrading bacteria		
IT	Eubacteria (ATCC 202057; biodegrdn. of ethers using an isolated mixed bacterial culture)		
IT	Achromobacter Coryneform bacteria Pseudomonas (biodegrdn. of ethers using an isolated mixed bacterial culture)		
IT	Ethers, processes RL: BSU (Biological study, unclassified); REM (Removal or disposal); BIOL (Biological study); PROC (Process) (biodegrdn. of ethers using an isolated mixed bacterial culture)		
IT	Decomposition (biodegrdn.; biodegrdn. of ethers using an isolated mixed bacterial culture)		
IT	Nitrification (biol.; biodegrdn. of ethers using an isolated mixed bacterial culture)		
IT	Taxonomy (chemotaxonomy, mol., and biochem.; biodegrdn. of ethers using an isolated mixed bacterial culture)		
IT	Evolution (mol.; biodegrdn. of ethers using an isolated mixed bacterial culture)		
IT	Wastewater treatment sludge (secondary, source of mixed culture; biodegrdn. of ethers using an isolated mixed bacterial culture)		
IT	Rhodococcus (strain 10BC; biodegrdn. of ethers using an isolated mixed bacterial culture)		
IT	7782-44-7, Oxygen, processes 12125-02-9, Ammonium chloride, processes RL: BCP (Biochemical process); BIOL (Biological study); PROC (Process) (biodegrdn. of ethers using an isolated mixed bacterial culture)		
IT	14797-55-8P, Nitrate, preparation RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation) (biodegrdn. of ethers using an isolated mixed bacterial culture)		
IT	50-21-5, Lactic acid, biological studies 67-63-0, Isopropanol, biological studies 75-65-0, tert-Butyl alcohol, biological studies		

124-38-9, Carbon dioxide, biological studies 762-75-4, tert-Butyl formate

RL: BSU (Biological study, unclassified); BIOL (Biological study) (biodegrdn. of ethers using an isolated mixed bacterial culture)

IT 108-20-3, Diisopropyl ether 628-55-7, Diisobutyl ether 637-92-3
919-94-8, tert-Amyl ethyl ether 994-05-8, tert-Amyl methyl ether
1634-04-4, Methyl tert-butyl ether 3249-46-5 3249-47-6 6163-66-2,
Di-tert-butyl ether 17348-59-3 74058-13-2 78448-33-6 207568-51-2
RL: BSU (Biological study, unclassified); REM (Removal or disposal); BIOL (Biological study); PROC (Process)
(biodegrdn. of ethers using an isolated mixed bacterial culture)

L26 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1999:183797 HCAPLUS

DN 130:227130

ED Entered STN: 22 Mar 1999

TI Method for sludge treatment by using light-weight porous carbonaceous materials

IN Tanaka, Yonemi

PA Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C02F011-12

ICS C02F001-28; C02F003-34; C05F007-00; C05F017-00

CC 60-4 (Waste Treatment and Disposal)

Section cross-reference(s): 19

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11070400	A2	19990316	JP 1998-151949	19980518 <--
	JP 2983014	B2	19991129		
	US 6238564	B1	20010529	US 1998-97584	19980616 <--
PRAI	JP 1997-177583	A	19970617	<--	
	JP 1998-151949	A	19980518	<--	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 11070400	ICM	C02F011-12
	ICS	C02F001-28; C02F003-34; C05F007-00; C05F017-00

AB The method is carried out by adding and mixing powdered and/or granular carbonaceous materials (e.g., activated carbon, carbonization material from waste tires) into the sludge, for adsorption of sludge for floatation then precipitation, to sep. sludge from water to be used as compost. The treatment also includes adding nitrites, nitrates, and saccharides into the sludge in the presence of photosynthesis microorganism.

ST sludge treatment carbonaceous material microorganism compost

IT Actinomycetes

Compost

Microorganism

Scrap tires

Sludges

Solid wastes

Wastewater treatment sludge

(method for sludge treatment by using light-weight porous carbonaceous materials)

IT Carbohydrates, uses

Monosaccharides

Nitrates, uses

Nitrites

Polysaccharides, uses

RL: NUU (Other use, unclassified); USES (Uses)

(method for sludge treatment by using light-weight porous carbonaceous materials)

IT Carbonaceous materials (technological products)

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(method for sludge treatment by using light-weight porous carbonaceous materials)

IT 7440-44-0, Carbon, processes

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(activated; method for sludge treatment by using light-weight porous carbonaceous materials)

=> d all 130 tot

L30 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:709511 HCAPLUS
 DN 134:208832
 ED Entered STN: 09 Oct 2000
 TI Synthesis of bioplastics from food industry wastes with activated sludge biomass
 AU Wong, A. L.; Chua, H.; Lo, W. H.; Yu, P. H. F.
 CS Open Laboratory of Chirotechnology and Dept. of Applied Biology and Chemical Technology, Hong Kong Polytechnic University, Hong Kong
 SO Water Science and Technology (2000), 41(12, Environmental Biotechnology), 55-59
 CODEN: WSTED4; ISSN: 0273-1223
 PB IWA Publishing
 DT Journal
 LA English
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 10, 17, 37, 60
 AB This paper describes the microbial production of polyhydroxyalkanoates (PHAs) from food industry wastes by a mixed culture of activated sludge microorganisms. The phys. and chemical properties of the bioplastics produced by the microorganisms from malt and soy wastes were different. The m.ps. of the products were compared, and the co-polymer composition of the products was investigated by gas chromatog. and NMR spectroscopy. In using activated sludge to convert the carbon source into PHAs, not only are environment-friendly bioplastics produced, but also the problem of disposing of municipal activated sludge is partly solved. The selection of food industry waste as the carbon source can also reduce the cost of producing PHAs.
 ST bioplastic synthesis food industry waste activated sludge biomass
 IT Plastics, properties
 RL: BPN (Biosynthetic preparation); PRP (Properties); BIOL (Biological study); PREP (Preparation)
 (bio-; synthesis of bioplastics from food industry wastes with activated sludge biomass)
 IT Solid wastes
 (food-processing; synthesis of bioplastics from food industry wastes with activated sludge biomass)
 IT Polyesters, properties
 RL: BPN (Biosynthetic preparation); PRP (Properties); BIOL (Biological study); PREP (Preparation)
 (hydroxycarboxylic acid-based; synthesis of bioplastics from food industry wastes with activated sludge biomass)
 IT Soybean (Glycine max)
 (okara; synthesis of bioplastics from food industry wastes with activated sludge biomass)
 IT Food processing
 (solid wastes; synthesis of bioplastics from food industry wastes with activated sludge biomass)
 IT Biomass
 Microorganism
 Sludges
 (synthesis of bioplastics from food industry wastes with activated sludge biomass)
 IT Malt
 (wastes; synthesis of bioplastics from food industry wastes with activated sludge biomass)
 RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Chua, H; Applied Biochem & Biotechnol 1997, V63, P627
 (2) Chuang, S; Wat Sci Tech 1998, V37(4), P593
 (3) Hu, W; Biotech Lett 1997, V19(7), P695 HCAPLUS
 (4) Lee, S; Adv Biochem Eng Biotechnol 1995, V52, P27 HCAPLUS
 (5) Liu, F; Biotech Lett 1998, V20, P345 HCAPLUS
 (6) Pfeffer, J; Solid Waste Management Eng 1992, V72
 (7) Yu, P; Appl Biochem & Biotechnol 1999, V40(1), P365 HCAPLUS
 (8) Yu, P; Appl Biochem and Biotechnol 1998, V70, P603
 (9) Yu, P; Wat Sci Tech 1999, V40(1), P365 HCAPLUS

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L48 ANSWER 1 OF 2 WPIX COPYRIGHT 2004 THE THOMSON CORP on STN

AN 2000-170602 [15] WPIX

CR 2002-237077 [29]; 2004-326746 [30]; 2004-347676 [32]

DNN N2000-126838 DNC C2000-052946

TI Novel method for the anaerobic biodegradation of (in)organic toxins in
 contaminated geological media uses compositions containing inorganic
 nutrients for MRP (multiple respiration pathway) microorganisms.

DC C07 D15 D16 E19 E37 P43

IN ANDERSON, T H; HINCE, E C; ZIMMER, R L

PA (GEOV-N) GEOVATION CONSULTANTS INC

CYC 1

PI US 6020185 A 20000201 (200015)* 30 B09B003-00 <--

ADT US 6020185 A US 1997-862782 19970523

PRAI US 1997-862782 19970523

IC ICM B09B003-00

AB US 6020185 A UPAB: 20040520

NOVELTY - A novel method of bioremediation of contaminated geologic media
 by alternating the cycles of redox potential and/or the predominant
 microbial respiration pathway within the contaminated geologic media, by
 employing one or more chemical compositions (I) - (VI).

DETAILED DESCRIPTION - A method of alternating the cycles of redox
 potential and/or the predominant microbial respiration pathway within the
 contaminated geologic media, by employing one or more chemical
 compositions selected from:

(I) A liquid chemical composition (I) for anaerobic biodegradation,
 detoxification, and transformation of toxic organic and inorganic
 compounds in contaminated geologic media, being ammonia free, comprises
 (pounds per gallon):

(i) sodium nitrate as the only nitrogen source and as an
 electron acceptor (0.2 - 4);

(ii) sodium hexametaphosphate and/or other ringed or linear
 polyphosphate compounds as a source of biologically hydrolyzable
 phosphorus (0.05 - 5);

(iii) a surfactant present in 0.01 - 10 % by volume;

(iv) a diluent; and

(v) one or more chelating agents.

(II) a liquid chemical composition (II) free of ammonia, comprising:

(i) sodium nitrate;

(ii) nitrous oxide;

(iii) a source of biologically hydrolyzable phosphorus (sodium
 hexametaphosphate and/or other ringed or linear polyphosphate);

(iv) a surfactant;

(v) a diluent; and

(vi) one or more chelating agents;

(III) a liquid chemical composition (III), comprising:

(i) ferrous sulfate heptahydrate as a sulfate containing electron
 acceptor compound;

(ii) sodium sulfate or other soluble sulfate salt;

(iii) a source of biologically hydrolyzable phosphorus (sodium
 hexametaphosphate and/or other ringed or linear polyphosphate);

(iv) a surfactant;
 (v) a diluent; and
 (vi) one or more chelating agents;
 (IV) a chemical composition (IV), comprising:
 (i) ferric nitrate nonahydrate as a source of nutrient nitrogen and two forms of electron acceptor;
 (ii) a source of biologically hydrolyzable phosphorus (sodium hexametaphosphate and/or other ringed or linear polyphosphate);
 (iii) a surfactant;
 (iv) a diluent; and
 (v) one or more chelating agents;
 (V) a chemical composition (V), comprising:
 (i) manganese nitrate, manganese nitrate tetrahydrate, or manganese nitrate hexahydrate as a source of electron acceptor nitrogen, nutrient nitrogen and micronutrient manganese;
 (ii) a source of biologically hydrolyzable phosphorus (sodium hexametaphosphate and/or other ringed or linear polyphosphate);
 (iii) a surfactant;
 (iv) a diluent; and
 (v) one or more chelating agents; and
 (VI) a chemical composition (VI) comprising:
 (i) a chelating agent which makes transition metals including, but not limited to Mn(IV) and Fe(III) present in the geologic media more biologically available to MRP (multiple respiration pathway) microorganisms;
 (ii) a source of biologically hydrolyzable phosphorus (sodium hexametaphosphate and/or other ringed or linear polyphosphate);
 (iii) a surfactant; and
 (iv) a diluent.

The method comprises:
 (A) introducing one or more of chemical compositions (I) to (VI) into the contaminated geologic media for one or more specified periods of time;
 (B) subsequently introducing one or more of chemical compositions (I) to (VI) into the contaminated geologic media for one or more additional specified periods of time; and
 (C) repeating and/or alternating steps (A) and (B) until the levels of contaminants in the contaminated geologic media have been reduced.

INDEPENDENT CLAIMS are also provide for:
 (1) the composition (I); and
 (2) a method of alternating the cycles of redox potential and/or the predominant microbial respiration pathway of MRP anaerobic bacteria within the contaminated geologic media in situ, by employing one or more chemical compositions selected from chemical compositions (I) to (VI) defined above, comprising:
 (A) performing a first phase of operation by adding one or more of compositions (I), (II), (IV), (V) into the contaminated geologic media for one or more specified periods of time at a specific delivery rate for promoting the growth of indigenous MRP anaerobic microorganisms via the denitrification pathway;
 (B) performing a second phase of operation by adding one or more of compositions (III), (IV), (V) and (VI) into the contaminated geologic media for one or more specified periods of time at a specific delivery rate for promoting the growth of indigenous MRP anaerobic microorganisms via microbial respiration pathways involving manganese reduction, iron reduction and/or the reduction of other metals;
 (C) performing a third phase of operation by adding composition (III) for one or more additional specified periods of time at a specific delivery rate for promoting the growth of anaerobic bacteria via the sulfate reduction pathway; and
 (D) repeating and/or alternating steps (A), (B) and (C) until the levels of contaminants in the contaminated geologic media have been reduced.

USE - Used for the biodegradation, transformation or detoxification of toxic organic and inorganic compounds in contaminated geologic formations to harmless and safe organic and inorganic materials.

ADVANTAGE - Toxic organic and inorganic contaminants are degraded, detoxified and transformed to products that do not effect air, water and soil at the site of remediation. The bioremediation system is inexpensive and easy to operate, especially in the field on a large scale basis. The process can be performed rapidly and safely in the field resulting in the site meeting environmental clean-up standards set by various governmental agencies more rapidly and at a lower cost than can be accomplished with other methods. The bioremediation system can be easily produced in an automated and economical manner and is readily affordable by responsible parties (engineers, government agencies, etc.).

DESCRIPTION OF DRAWING(S) - A side elevational view of the anaerobic

bioremediation apparatus and its major component assemblies.

chemical composition 40
bioremedial processing apparatus 50
dispensing apparatus 80
carrier gas cylinder 82
well component assembly 150

Dwg.1/12

FS CPI GMPI

FA AB; GI; DCN

MC CPI: C04-F01; C04-F09; C04-F10; C05-A01B;
C05-A03A; C05-B01P; C05-B02A; C05-B02A3; C05-B02C; C05-C02; C05-C03;
C05-C05; C09-D02; C10-B01B; C10-B02J; C10-C02; C10-C04E; C10-E04D;
C10-G03; C10-H01; C10-H02E; C10-H02F; C11-B; C11-C09; C14-T01; C14-W;
D04-A01J; D04-B; D05-A04B; D05-H04; E10-B01C; E10-C02A;
E11-Q02; E31-H05; E31-K06; E33-E; E35-S; E35-U04; E35-U05

L48 ANSWER 2 OF 2 WPIX COPYRIGHT 2004 THE THOMSON CORP on STN

AN 1999-097114 [09] WPIX

CR 1999-036001 [04]

DNC C1999-028875

TI Biological purification of waste water using nitrification and
denitrification reactors - which are separated by a nozzle plate allowing
use of bacteria support materials of different size and density.

DC A97 D15

IN DICKGREBER, M

FA (PREU) PREUSSAG NOELL WASSERTECHNIK GMBH; (PREU) PREUSSAG WASSERTECHNIK
GMBH

CYC 1

PI DE 19758486 A1 19990121 (199909)* 4 C02F003-30

DE 19758486 C2 20000817 (200040) C02F003-30

ADT DE 19758486 A1 Div ex DE 1997-1023789 19970606, DE 1997-1058486 19970606;

DE 19758486 C2 Div ex DE 1997-1023789 19970606, DE 1997-1058486 19970606

FDT DE 19758486 A1 Div ex DE 19723789; DE 19758486 C2 Div ex DE 19723789

PRAI DE 1997-19723789 19970606; DE 1997-19758486 19970606

IC ICM C02F003-30

AB DE 19758486 A UPAB: 20000823

In a process and assembly for the biological removal of nitrogen from
waste water (4), the water is introduced to a reactor which has two zones
containing a substrate material, in which the water is fed through an
anoxic part of the reaction zone (2). In this zone suspended solids are
retained, the chemical oxygen demand and biological oxygen demand are
reduced, and nitrogen in the form of nitrate is reduced to
elementary nitrogen. Water thus treated is then surrendered to the second
reactor zone (1) in which it is aerated (8a) to produce an oxygen-rich
zone in which the nitrogen compounds are oxidised to nitrate.

The novelty is that: (a) the reaction zones (1, 2) are separated from
each other by a nozzle plate; (b) the reaction zones contain different
types of support (for bacteria) having different grain size and density;
and (c) the lower part of the anoxic reactor zone (2) has support material
of fine grain and low density, while the aerobic zone above (1) has a
support material of low density and coarse grain.

Preferably the support material is polystyrene.

USE - Process and assembly are used for the biological removal of
nitrogen from waste water.

ADVANTAGE - Separation of the two zones by the nozzle plate
facilitates the use of polystyrene grains of different sizes in the two
zones and ensures that a biological phosphate elimination takes place as
well.

Dwg.1/1

FS CPI

FA AB; GI

MC CPI: A12-S01; A12-W11J; A12-W11L; D04-A01J; D04-B07B;
D04-B07C